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CLAIMS

(52)

1. (amended) An apparatus for tightening a threaded member, comprising: a screwing mechanism including a rotational shaft and 5 a threaded engagement member threadedly engaging an outer periphery of the rotational shaft; an axial movement means provided to one of the rotational shaft and the threaded engagement member for axially moving to rotate the rotational shaft; a shaft member provided to the rotational shaft and capable of rotating in unison 10 with the rotational shaft, the shaft member being hollowed to define a space therein; a socket portion provided to one end of the shaft member for receiving therein the threaded member in such a manner as to transmit the rotation of the shaft member to the threaded member; and a retention means for retaining the threaded member 15 received in the socket portion or the threaded member released from the socket portion,

wherein the retention means comprises a rod axially movably disposed within the space of the shaft member and having a lower end positioned in a vicinity of the socket portion, a magnet provided 20 at the lower end of the rod for magnetically holding a head of the threaded member to thereby retain the threaded member within the socket portion, a compression spring disposed on the shaft member for urging the magnet to an attracting position in which the threaded member is magnetically held by the magnet, and a moving 25 means for moving the rod against the urging force of the spring to cause the magnet to move away from the attracting position to thereby release the threaded member from the socket portion.

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2. (canceled)

3. An apparatus according to claim 1, wherein the shaft member is pivotally connected to the rotational shaft.

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4. An apparatus according to claim 1, wherein the axial movement means is an automatic robot arm axially movable to rotate the rotational shaft.

10 5. (amended) An apparatus for tightening a threaded member to a workpiece, the apparatus shuttling between the workpiece and a supplying section at which the apparatus is supplied with the threaded member, the apparatus comprising:

an automatic robot arm;

15 a screwing mechanism provided to the automatic robot arm and including a rotational part and a threaded engagement member threadedly engaging the rotational part;

an axial movement means for axially moving to move the threaded engagement member axially of the rotational part to rotate  
20 the rotational part;

a shaft member axially movably provided to the rotational part via a slide part slidable relative to the rotational part, the shaft member capable of rotating in unison with the rotational part;

25 an urging means for urging the shaft member in a direction away from the rotational part;

a socket portion provided to one end of the shaft member

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for receiving therein the threaded member in such a manner as to transmit the rotation of the shaft member to the threaded member; and

a retention means for retaining the threaded member received 5 in the socket portion and retaining the threaded member released from the socket portion.

6. An apparatus according to claim 5, wherein the axial movement means moves axially to rotate the rotational part in either one 10 direction to tighten the threaded member to the workpiece or the opposite direction to loosen the threaded member out of the workpiece.